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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,864	01/05/2004	Masaaki Hirano	50395-243	3238

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EXAMINER	
DEHGHAN, QUEENIE S	
ART UNIT	PAPER NUMBER
1791	
MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/750,864	HIRANO ET AL.	
	Examiner	Art Unit	
	Queenie Dehghan	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 August 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-27* is/are pending in the application.

4a) Of the above claim(s) *25-27* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 2-4, 6, 13, 15, and 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kamiya et al. (4,772,303). Regarding claim 2, Kamiya et al. disclose a method for producing an optical fiber comprising:

a. a drying step to heat the glass pipe at a temperature of 550°C or below;

b. a sealing step to seal one end of the glass pipe (col. 3 lines 11-26); and

c. a collapsing step to collapse the glass pipe to obtain a solid body (col. 3 lines 60-68).

Although the drying step is not performed before the sealing step, it would have been obvious to one of ordinary skill in the art at the time of the invention to select the order of the steps, i.e. to have performed the drying step prior to the sealing step in the absence of new or unexpected results. Furthermore, the drying step effectively removes moisture by heating the tube to a temperature less than 500°C and the sealing steps essentially provides pressure control within the tube. One of ordinary skill would have recognized that performing the drying step before or after the sealing step would not have altered the predicable result that moisture is removed since the act of heating the tube is performed. All the claimed steps are known in the prior art and one skill in the art could have combined the steps and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

4. Regarding claims 3 and 4, Kamiya et al. disclose a drying temperature range of 100°C to 500°C (col. 3 lines 21-22), which is clearly above 60°C and/or 300°C.

5. Regarding claim 6, Kamiya et al. disclose in figure 2, a furnace 51 for heating the tube in the drying step, which clearly covers a longitudinal range including and wider than the section of the tube comprising the inner layer 30, which is the section of the tube exposed to the collapsing temperature at furnace 33.

6. Regarding claim 13, Kamiya discloses reducing the pressure in the pipe to below 4 kPa in the drying step (col. 2 lines 39-49, col. 3 lines 18-41).

7. Regarding claim 15, Kamiya discloses a glass depositing step for the inner surface of the tube (col. 2 lines 15-20).

8. Regarding claim 24, Kamiya discloses the pressure in the glass tube is below 4kPa when the tube is being collapsed (col. 4 lines 60-65).

9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kamiya et al. (4,772,303) in view of DiGiovanni et al. (6,966,201). Kamiya et al. disclose a first drying step at a temperature range of 100°C to 500°C, wherein 100°C clearly falls within the range of 60-200°C. DiGiovanni et al. teach a purify step followed by a drying step at a temperature of 700°C, which is above 300°C (col. 5 line 62 to col. 6 line 7). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the drying step at 700°C of DiGiovanni et al. in the process of Kamiya et al. in order further remove moisture.

10. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamiya et al. (4,772,303) in view of Barns et al. (4,842,626). Kamiya et al. fail to disclose the specific content of the drying gas used. Barns et al. teach the drying of the inside of a glass tube by utilizing a gas containing less than 10 ppm hydrogen atom-containing substances (claim 1). Barns et al. further indicate blowing a volume of drying gas through the tube could be high enough to potentially create an increased pressure in the tube. It is the position of the Examiner that there is not reason not to believe this amount of drying gas is not at least 10 times the inner volume of the pipe, especially since it is capable of creating an increase pressure. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the drying gas with such volume and H content in the process of Kamiya et al. in order to allow for the proper removal of the OH in the glass tube, as indicated by Barns et al.

11. Claims 9 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamiya et al. (4,772,303) in view of Onishi et al. (Derwent Abstract of JP 08-067524). Kamiya et al. fail to disclose holding pipes. Onishi et al. teach holding pipes connected to at least one end of a glass tube for MCVD processes (drawing 1a, abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize such a holding pipe in the process of Kamiya to allow for the handling of the tube and opening for the flow of various drying gases. Additionally, since the holding pipe is in connection with the tube that is heated, it would have been obvious to one of ordinary skill in the art at the time of the invention to expect that the holding pipe would radiate to the outside of the pipe infrared rays traveling though the wall of the pipe, since heat in the pipe would be conducted to the holding pipe and eventually radiated outside. Although not mentioned specifically, since the holding pipe of Onishi et al. allows for the passing of gases through the pipe and the tube, it would have been obvious to one of ordinary skill in the art at the time the invention was made to expect that since the pipe is in connection with the tube and in the drying process of the Kamiya, drying gases flowing to the tube would have simultaneously remove hydroxyl groups from the holding pipe as well.

12. Claims 10 and 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kamiya et al. (4,772,303) in view of Kunio (JP 62-226829). Kamiya discloses changing pressures in the tube during drying, after the sealing step, but do not disclose a first stage of reducing and second stage of increasing pressure. Kunio teaches a method for manufacturing optical fibers comprising of collapsing a tube and drying the tube in a

two stage process including reducing the pressure of the glass pipe and introducing a dried gas into the pipe, essentially raising the pressure inside the tube (abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the pressure stages of Kunio in the process of Kamiya et al. in order eliminate contaminates in the tube before drying the tube with a drying gas.

13. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kamiya et al. (4,772,303) in view of Homa (2003/0213268). Kamiya et al. fail to disclose a drying time. Homa teaches drying a glass tube for 1 hr ([0033]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the drying time of Homa in the process of Kamiya in order to ensure reduction of the hydroxyl groups in the glass tube.

14. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kamiya et al. (4,772,303) in view of Chang et al. (2002/0194877). Kamiya et al. fail to disclose inserting a rod in the tube. Chang et al. suggest the many known ways to manufacture an optical fiber preform including deposition inside a tube and inserting a rod into a tube ([0005], [0027], [0028]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the method step of inserting a rod into the tube, as suggest by Chang et al., because it is a well known method to manufacture a preform for optical fiber and to allow for overcladding of a rod.

15. Claims 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamiya et al. (4,772,303) in view of Homa (2003/0213268) and Yokota et al. (4,793,842). Kamiya et al. fail to disclose an etching step. It is apparent to one skill in

the art to know the importance of removing moisture in the many method steps in manufacturing an optical preform. Homa teaches a variation of the process wherein a glass tube is etched with a gas and then dried ([0033]). Yokota et al. teach another variation where etching of the glass tube is done with drying the tube (col. 3 lines 24-42). Both Homa and Yokota et al. teach the need to dry the glass tub to ensure that hydroxyl groups are removed along the many various steps in manufacturing a preform. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the combination of steps of drying, etching, and drying or etching and drying, as suggested by Homa and Yokota et al. in the process of Kamiya et al. in order to ensure that hydroxyl groups have been removed from the tube during any number of various steps in the manufacturing process. Furthermore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the etching step in a longitudinal range, similarly to the drying step of Kamiya as discussed in claim 6 above, in order to properly encompass the critical optical fiber region comprising the core.

16. Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamiya et al. (4,772,303) in view of DiGiovanni et al. (6,966,201). Kamiya et al. fail to disclose a purifying step specifically. DiGiovanni et al. teach drying a glass tube, followed by a chemical purifying step with chlorine gas and another drying step (col. 5 lines 18-27, 62-66, col. 6 lines 4-7). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the purifying step of DiGiovanni et

al. in the process of Kamiya et al. in order to purify the soot body located within the tube.

Response to Arguments

17. Applicant's arguments filed August 20, 2007 have been fully considered but they are not persuasive. In regards to Kamiya, the applicant argues that two open ends reduce the amount of re-adsorption of the desorbed hydrogen atom-containing substances, because the drying gas is allow to flow out of the tube. Kamiya remedies this problem by evacuating the tube, which is not in contradiction to the applicant's intentions.

18. The applicant noted that claims 9 and 11 were not previously rejected. The Examiner did reject claims 9 and 11, but inadvertently labeled the preamble of the rejection as claims 7 and 8, instead of claims 9 and 11. Please note that paragraphs 17 and 18 in the previous action rejects claims 7 and 8 twice, but instead, paragraph 18 should have been labeled claims 9 and 11. Also, claim 12 was given 112 rejections, which in light of the amendment, is now rejected above.

Conclusion

19. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Queenie Dehghan whose telephone number is (571)272-8209. The examiner can normally be reached on Monday through Friday 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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